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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,776	03/08/2001	Junichi Yamanouchi	003510-081	8385

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EXAMINER	
SHOSHO, CALLIE E	

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1714	8

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Please find below and/or attached an Office communication concerning this application or proceeding.

9

AS-8

Office Action Summary	Application No. 09/800,776	Applicant(s) YAMANOUCHI ET AL.	
	Examiner Callie E. Shosho	Art Unit 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2002 and 13 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-15 and 17-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-15 and 17-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 12/11/02 and 1/13/03.

The following action is non-final in light of the new grounds of rejection as set forth below.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3-15, and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishizuka et al. (US 2001/0023267).

Ishizuka et al. disclose ink jet ink which comprises coloring composition formed by dispersing coloring particulates in water-based medium wherein the coloring particulates contain nonionic oil-soluble vinyl polymer, high boiling point organic solvent identical to that presently claimed, and oil-soluble dye identical to that presently claimed. It is disclosed that the polymer possess particle size of 3-200 nm and that the solvent possess dielectric constant of 3-12. It is disclosed that the coloring particulates contain 10-600 parts polymer per 100 parts dye and 10-2000 parts solvent per 100 parts polymer. Thus, using 100 parts polymer, it is calculated that the

coloring particulates comprise approximately 5-47% polymer, 5-47% dye, and 47-90% solvent. There is also disclosed an ink jet recording method wherein the ink is printed onto paper which comprises ink receiving layer (paragraphs 43, 49, 50-104, 113, 115, 238, 250, 258-262, 267, 273, 276, and 367-372).

In light of the above, it is clear that Ishizuka et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 3-10, 12-14, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ober et al. (U.S. 4,692,188) in view of Meyrick et al. (U.S. 6,344,497) and either JP 03231975 or JP 09059552.

Ober et al. disclose water-based ink jet ink and method of ink jet printing wherein the ink contains coloring particulates comprising 1-50% oil-soluble dye, 5-50% non-ionic vinyl polymer, and 70-95% water-immiscible solvent. The nonionic polymer includes vinyl polymer that has particle size of 100-500 nm. There is also disclosed an ink jet printing method wherein the above ink is loaded into an ink jet printer and then printed onto substrate (col.3, lines 65-68, col.4, lines 31-41, col.5, lines 27-42, 50, and 59, and col.6, lines 16-21 and 36-42).

The difference between Ober et al. and the present claimed invention is the requirement in the claims of (a) high boiling point solvent and (b) specific type of oil-soluble dye.

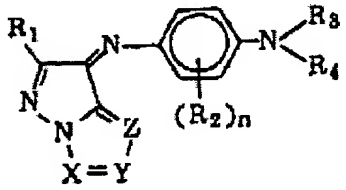
With respect to difference (a), it is noted that Ober et al. disclose that the polymer and dye are added to water-immiscible solvent to form a solution or dispersion to which water is added, and then the mixture is emulsified. However, there is no explicit disclosure that the solvent is a high boiling point solvent as presently claimed. The solvent is, for example, toluene.

Meyrick et al., which is drawn to ink jet inks, disclose the use of water-insoluble solvent such as dibutyl phthalate. Meyrick et al. also disclose the equivalence and interchangeability of toluene, as disclosed by Ober et al., with dibutyl phthalate (col.8, lines 13 and 20). Although there is no explicit disclosure of the specific inductive capacity of the solvent, given that the solvent disclosed by Meyrick et al. is identical to those presently claimed, it is clear that the solvent inherently possesses specific inductive capacity as presently claimed.

The motivation for using such solvent is to produce ink with improved optical density and chroma (Table 2).

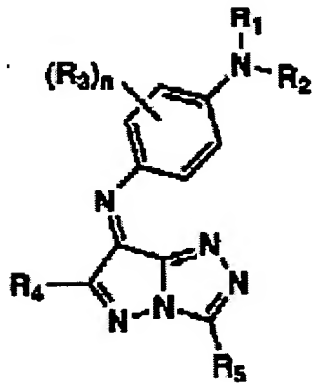
In light of the motivation for using specific type of solvent disclosed by Meyrick et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such solvent in the ink jet ink of Ober et al. in order to produce an ink with improved optical density and chroma, and thereby arrive at the claimed invention.

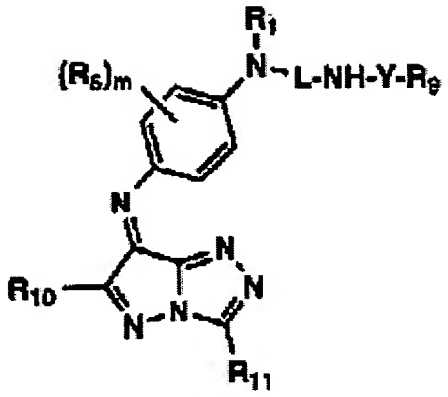
With respect to difference (b), JP 03231975, an English translation of which is included in this office action, is drawn to ink jet ink and discloses an oil-soluble dye of the formula:



wherein R_3 and R_4, which correspond to presently claimed R^4 and R^5, are each hydrogen, alkyl, cycloalkyl, aralkyl, or aryl group, R_2, which corresponds to presently claimed R^2, R^3, R^6, and R^7 are each hydrogen, cyano, alkyl, alkoxy, aryl, amino, or halogen, R_1, which corresponds to presently claimed R^1, is hydrogen, cyano, alkyl, alkoxy, aryl, amino, or halogen, presently claimed X^1 and Y are independently either $-CR_5=$ or $-N=$, where R_5 is hydrogen or alkyl, aryl, or heterocyclic, group, and presently claimed B^1 is $=C(R^6)-$ and B^2 is $-C(R^7)=$ wherein R^6 and R^7 are defined above (abstract, claim 1, page 7, pages 18-25). The motivation for using such dye is to produce a printed image with good hue (page 5, first full paragraph).

Alternatively, JP 09059552, an English translation of which is included in this office action, which is drawn to ink jet ink, disclose the use of oil-soluble dyes of the formula:





wherein R_1 and R_2, corresponding to presently claimed R^4 and R^5, are hydrogen, aliphatic, aromatic, or heterocyclic group, L is alkylene group, Y is carbonyl or sulfonyl group, R_9 is aromatic, aliphatic, heterocyclic, alkoxy, or amino group, R_3 or R_6, which each correspond to either presently claimed R^2, R^3, R^6, and R^7 are hydrogen, halogen, alkoxy, aryl, carboxyl, or amino group, R_4 or R_{10}, which each correspond to presently claimed R^1, are aliphatic, aromatic, heterocyclic, alkoxy, sulfonyl, or amino group, presently claimed X^1 is $-CR_5=$ or $-CR_{11}=$, which each correspond to presently claimed $-C(R^8)=$, where R_5 or R_{11} is hydrogen, aliphatic, or aromatic group, presently claimed Y is –N=, and presently claimed B^1 is $=C(R^6)-$ and B^2 is $-C(R^7)=$ wherein R^6 and R^7 are defined above (abstract, claim 1, claim 3, and paragraphs 9, 16, 24-30, and 39-56). The motivation for using such dye in the ink composition is that the dye produces a printed image that has excellent color tone, reproducibility, and resistance to light (paragraph 7).

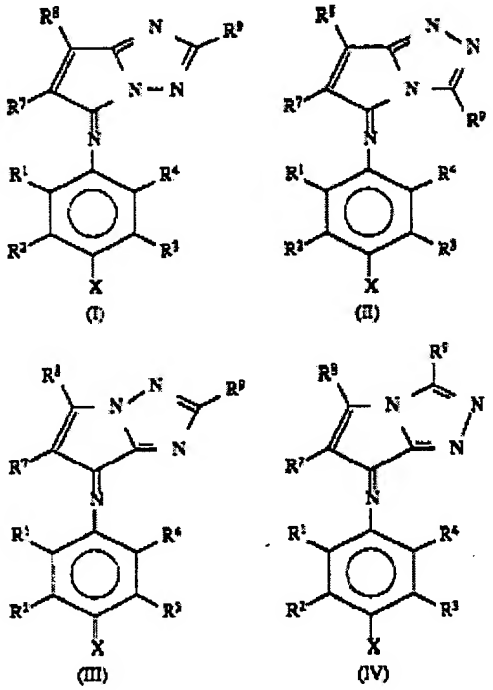
In light of the motivation for using specific type of oil-soluble dye disclosed by JP03231975 or JP 09059522, it therefore would have been obvious to one of ordinary skill in the

art to use such dye in the ink jet ink of Ober et al. in order to produce an ink with good hue, or alternatively, excellent color tone, reproducibility, and resistance to light, and thereby arrive at the claimed invention.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ober et al. in view of Meyrick et al. and either JP 03231975 or JP 09059552 as applied to claims 1, 3-10, 12-14, and 17-20 above, and further in view of Suzuki et al. (U.S. 5,508,421).

The difference between Ober et al. in view of Meyrick et al. and either JP 03231975 or JP 09059552 and the present claimed invention is the requirement in the claims of specific type of oil-soluble dye.

Suzuki et al. disclose the use of oil-soluble dyes of the formula:



which are identical to the dyes presently claimed and wherein X is OH or NR^5R^6, R^1-R^4 and R^9 are hydrogen, alkyl, halogen, etc., R^7, which corresponds to presently claimed R^{201}, is cyano, COR, etc., and R^8, which corresponds to presently claimed R^{202}, is hydrogen, heterocyclic group, alkyl, aryl, cyano, etc.. It is also disclosed that the dyes are suitable for use in inks (col.3, lines 38-67, col.4, lines 12-29, col.6, line 42-col.7, line 57, col.9, lines 12-52, col.10, lines 14-30, and col.13, lines 3-5 and 21-23). The motivation for using such dyes is that they possess high absorption and high fastness to light and heat (col.2, lines 7-10 and col.3, lines 14-21).

In light of the motivation for using specific type of oil-soluble dye disclosed by Suzuki et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such dye in the ink jet ink of Ober et al. in order to produce an ink which possess high absorption and high fastness to light and heat, and thereby arrive at the claimed invention.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ober et al. in view of Meyrick et al. and either JP 03231975 or JP 09059552 as applied to claims 1, 3-10, 12-14, and 17-20 above, and further in view of Idei et al. (U.S. 5,302,437).

The difference between Ober et al. in view of Meyrick et al., and either JP 03231975 or JP 09059552 and the present claimed invention is the requirement in the claims of substrate that has ink-receiving layer containing porous inorganic pigment.

Idei et al., which is drawn to ink jet recording sheet, disclose that when ink jet recording is carried out on non-coated, i.e. plain, paper, the images are low in colorfulness, clarity, printed dot density, and image density resulting in a deterioration of dot shape, feathering, and strike-through. Idei et al. also disclose that when ink jet recording is carried out on coated paper, the

colorfulness, clarity, feathering, and strike-through are improved as compared to recording on non-coated paper. The coated paper includes paper or transparent film having a silica coating (col.3, lines 15-42 and 57-66 and col.4, lines 54-57).

In light of the motivation for using coated paper as compared to plain paper disclosed by Idei et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use coated paper having a silica coating as the printing medium in Ober et al. in order to produce a printed image which has good colorfulness and clarity as well as little feathering or strike-through, and thereby arrive at the claimed invention.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Callie Shosho

CS
March 24, 2003

Callie E. Shosho
Examiner
Art Unit 1714